

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A developing apparatus comprising:

a substrate holding unit for holding a substrate in a substantially horizontal attitude, the substrate having an exposed resist thereon;

a developer supply nozzle for delivering a developing solution to the substrate, the developer supply nozzle having therein an ejection port that has a length substantially equal to or larger than a width of an effective area of the substrate;

a diluent supply nozzle for delivering a diluent to the substrate, the diluent supply nozzle having therein an ejection port that has a length substantially equal to or larger than the width of the effective area of the substrate;

a temperature regulating unit for controlling temperature of the developing solution to be supplied from the developer supply nozzle according to a type of the resist on the substrate or a specific geometrical characteristic of a pattern of the resist;

a drive mechanism for moving the developer supply nozzle and the diluent supply nozzle from one end of the substrate to the opposite end of the substrate; and

means a control unit for controlling operation of the diluent supply nozzle such that the diluent is supplied to a surface of the substrate at a predetermined timing after the developing solution is supplied to the surface of the substrate from the developer supply nozzle when the developing solution is deteriorated due to progression of developing reaction after supplying of the developing solution so that a developing reaction rate is lowered.

Claim 2 (Original): The developing apparatus according to claim 1, wherein said apparatus includes plural number of said developer supply nozzles, and each of the developer supply nozzles is provided with a temperature regulating unit to control the temperature of a developing solution.

Claim 3 (Original): The developing apparatus according to claim 2, wherein the developer supply nozzles are integrated together into a single liquid-supplying nozzle unit moved by a common drive mechanism.

Claim 4 (Currently Amended): The developing apparatus according to ~~any one of claims 1 to 3~~ claim 1, wherein the developer supply nozzle and the diluent supply nozzle are integrated together into a single liquid-supplying nozzle unit moved by a common drive mechanism.

Claim 5 (Currently Amended): The developing apparatus according to claim 3-~~or 4~~, wherein the liquid-supplying nozzle unit is adapted to eject a plurality of developing solutions or diluents through a common ejection port.

Claim 6 (Currently Amended): The developing apparatus according to claim 3-~~or 4~~, wherein:

the liquid-supplying nozzle unit has a developer ejection port for ejecting a developing solution and a diluent ejection port for ejecting a diluent; and

the developer ejection port and the diluent ejection port are arranged adjacent each other in a direction of movement of the liquid-supplying nozzle unit.

Claim 7 (Original): The developing apparatus according to claim 6, wherein:

the developer ejection port is located on a forward side of the liquid-supplying nozzle unit with respect to the direction of movement of the liquid-supplying nozzle unit; and

a suction port is provided between the developer ejection port and the diluent ejection port to suck a developing solution on the surface of the substrate.

Claim 8 (Currently Amended): The developing apparatus according to ~~any one of claims 3 to 7~~ claim 3, further comprising means for selecting one of a plurality of prepared developing solutions as a developing solution to be ejected through a developer supply, wherein temperature of the selected developing solution has been adjusted according to the type of the resist on the substrate or the specific geometrical characteristic of the pattern of the resist.

Claim 9 (Original): The developing apparatus according to claim 8, wherein while said one developing solution is selected, temperature of another developing solution is adjusted.

Claim 10 (Currently Amended): The developing apparatus according to ~~any one of claims 3 to 9~~ claim 3, further comprising a control unit for wherein the control unit is configured to:

~~storing~~ store data showing relationship between types of resists on the substrate to be developed or specific geometrical characteristics of patterns of the resists and developing solution temperatures suitable therefor; and

~~controlling~~ control, based on the data, the temperature regulating unit to adjust the temperature of a developing solution to a value suitable for a resist to be developed.

Claim 11 (Currently Amended): The developing apparatus according to ~~any one of claims 3 to 10~~ claim 3, wherein a temperature regulating unit is arranged in a developer supply nozzle to control the temperature of a developing solution.

Claim 12 (Currently Amended): The developing apparatus according to ~~any one of claims 3 to 11~~ claim 3, wherein a temperature regulating unit is arranged in the liquid-supplying nozzle.

Claim 13 (Currently Amended): The developing apparatus according to ~~any one of claims 1 to 7~~ claim 1, further comprising a concentration control unit for controlling concentration of a developing solution to be supplied through a developer supply nozzle, according to the type of the resist on the substrate to be developed or the specific geometrical characteristic of the pattern of the resist.

Claim 14 (Original): The developing apparatus according to claim 13, further comprising means for selecting one of a plurality of prepared developing solutions as a developing solution to be ejected through a developer nozzle, wherein the concentration of the selected developing solution has been adjusted according to the type of the resist on the substrate or the specific geometrical characteristic of the pattern of the resist.

Claim 15 (Original): The developing apparatus according to claim 14, wherein while said one developing solution is selected, concentration of another developing solution is adjusted.

Claim 16 (Currently Amended): The developing apparatus according to ~~any one of claims 1 to 15~~ claim 1, wherein, at any portion of an effective area of the substrate, a diluent is supplied 20 seconds or less after a developing solution is supplied.

Claim 17 (Currently Amended): A developing method comprising the steps of: applying a developing solution to a surface of an exposed resist film on a substrate by using a nozzle;

adjusting the temperature of the developing solution such that the resist in a region to be removed by developing is dissolved as much as needed, before the developing solution is applied;

leaving the substrate coated with the developing solution for a predetermined period of time to promote development reaction, thereby dissolving regions of the resist to be removed by the development reaction;

supplying, after the step of leaving the substrate, a diluent for ~~diluting the developing solution~~ ~~reducing a concentration of the developing solution thereby for suppressing or stopping dissolving of the resist~~, to the substrate; and

supplying, after the step of supplying the diluent, a cleaning liquid to the substrate for cleaning;

~~wherein the temperature of the developing solution is adjusted such that when the substrate is left for the predetermined period of time, the regions of the resist to be removed by the development reaction is dissolved to a required extent wherein the developing solution supplying step supplies the diluent when the developing solution is deteriorated due to progression of developing reaction after supplying of the developing solution so that a developing reaction rate is lowered.~~

Claim 18 (Original): The developing method according to claim 17, wherein each of the step of applying the developing solution and the step of supplying the diluent includes a step of moving a nozzle from one end of the substrate to the opposite end the substrate, the nozzle having therein an ejection port that has a length substantially equal to or larger than a width of an effective area of the substrate.

Claim 19 (Original): The developing method according to claim 18, wherein a nozzle movement direction and a nozzle movement speed at the step of supplying the diluent are the same as those at the step of applying the developing solution.

Claim 20 (Currently Amended): The developing method according to ~~any one of claims 17 to 19~~ claim 17, wherein the step of applying the developing solution and the step of

supplying the diluent use the same nozzle to deliver the developing solution and the diluent, respectively, to the surface of the substrate.

Claim 21 (Currently Amended): The developing method according to ~~any one of~~ ~~claims 17 to 20~~ claim 17, wherein:

the developing method is performed by using a developing apparatus including a plurality of developer nozzles; and

said developing method further comprising the step of:

while a developing solution is being applied by using one of the plurality of developer nozzles, adjusting the temperature of a developing solution for another one of the plurality of developer nozzles.

Claim 22 (Original): The developing method according to claim 21, wherein the plurality of developer nozzles are integrated together into a single liquid-supplying nozzle unit.

Claim 23 (Currently Amended): The developing method according to ~~any one of~~ ~~claims 17 to 20~~ claim 17, further comprising the step of:

adjusting temperature and concentration of a developing solution before the developing solution is applied to the substrate.

Claim 24 (Original): The developing method according to claim 23, wherein:

the developing method is performed by using a developing apparatus including a plurality of developer nozzles; and

said developing method further comprising the step of:

while a developing solution is being applied by using one of the plurality of developer nozzles, adjusting temperature and concentration of a developing solution for another one of the plurality developer nozzles.

Claim 25 (Currently Amended): The developing method according to ~~any one of claims 17 to 24~~ claim 17, wherein, at any portion of an effective area of the substrate, a diluent is supplied 20 seconds or less after a developing solution is supplied.

Claim 26 (New): The developing apparatus according to claim 1, wherein the control unit is configured to control the operation of the diluent supply nozzle such that the a diluent is supplied 20 seconds or less after a developing solution is supplied to the surface of the substrate from the developer supply nozzle.

Claim 27 (New): The developing apparatus according to claim 1, wherein the temperature regulating unit adjusts the temperature of the developing solution at a temperature in a range of 40°C to 60°C if solubility of the resist to the developing solution is low.

Claim 28 (New): The developing apparatus according to claim 1, wherein the temperature regulating unit adjusts the temperature of the developing solution at a temperature in a range of 20°C to 40°C if solubility of the resist to the developing solution is high.

Claim 29 (New): The developing apparatus according to claim 1, wherein the temperature regulating unit adjusts the temperature of the developing solution at a

temperature in a range of 10°C to 40°C if dissolving of the resist is promoted at a low temperature.

Claim 30 (New): The developing apparatus according to claim 1, wherein:

a damper rod is arranged in an ejection port of the developer supply nozzle or an ejection port of the diluent supply nozzle such that the developing solution or the diluent collides with the damper rod before being ejected; and

the damper rod is configured to change the temperature thereof, whereby the temperature of the developing solution or the diluent can be adjusted by means of the damper rod.

Claim 31 (New): The developing apparatus according to claim 4, wherein the liquid-supplying nozzle unit is provided therein with a developer buffer portion for storing a developing solution therein and a diluent buffer portion for storing a diluent therein, and a temperature adjusting device utilizing Peltier effect is arranged between the developer buffer portion and the diluent buffer portion.